

## INTERNATIONAL SEARCH REPORT

PCT/EP 03/06589

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C02F1/04 C02F1/02 B01D3/14 B01D53/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C02F B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, BIOSIS, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 838 574 A (COFER PASADENA KENNETH B) 10 June 1958 (1958-06-10) column 2, line 50 -column 3, line 16; figure 1	1, 2, 4, 6, 7, 9
X	US 5 447 195 A (LUYTS GUIDO) 5 September 1995 (1995-09-05) column 3, line 15 -column 4, line 42; figure 1	1-5, 7
X	US 5 548 906 A (LEE DAE SUNG ET AL) 27 August 1996 (1996-08-27) column 3, line 63 -column 4, line 22; figure 1 column 4, line 59 -column 6, line 7	1, 4, 5, 7, 8

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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

23 October 2003

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Glod, G

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 497 493 A (FMC CORP) 12 January 1978 (1978-01-12) page 2, line 47 - line 116; claims 1-5 ---	10-14
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 12, 3 January 2001 (2001-01-03) & JP 2000 237761 A (KIKAI KAGAKU KENKYUSHO:KK), 5 September 2000 (2000-09-05) abstract ---	10-14
P,A	WO 02 081379 A (HAN JOO-HEE ; NOH MIN-JEONG (KR); SHIN YOUNG-HO (KR); CHOI YOUNG-JA) 17 October 2002 (2002-10-17) page 6 -page 8, line 20; claims 1-7; figure 1 -----	

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2838574	A	10-06-1958	NONE	
US 5447195	A	05-09-1995	BE 1007213 A5 DE 69416037 D1 DE 69416037 T2 EP 0628779 A2 ES 2129571 T3 JP 7071893 A	25-04-1995 04-03-1999 01-07-1999 14-12-1994 16-06-1999 17-03-1995
US 5548906	A	27-08-1996	KR 119766 B1 AU 690172 B2 AU 1121895 A BR 9408150 A CA 2177161 A1 CN 1142810 A , B EP 0730561 A1 JP 9507036 T WO 9514640 A1 RU 2145573 C1	29-10-1997 23-04-1998 13-06-1995 05-08-1997 01-06-1995 12-02-1997 11-09-1996 15-07-1997 01-06-1995 20-02-2000
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WO 02081379	A	17-10-2002	KR 2002078538 A WO 02081379 A1	19-10-2002 17-10-2002

PATENT CLAIMS

1. Device for thermal waste water purification with a container through which the waste water flows,  
5 characterised by  
at least one flow guide means (1, 2) for a substantially meander-shaped guide of the waste water in the container (R5) and at least one heating means (3) in the container (R5) for setting a predetermined temperature.
- 10 2. Device according to claim 1 characterised in that the flow guide means (1, 2) has at least one wall, more particularly formed by a screen base around which the waste water is directed.
- 15 3. Device according to claim 1 or 2 characterised in that as flow guide means (1, 2) there is alternately in parallel a wall with an overflow weir and a wall with an underflow weir.
- 20 4. Device according to at least one of the preceding claims characterised in that at least one heating means (3) is mounted between two flow guide means (1, 2) more particularly in an area of a rising flow.
- 25 5. Device according to at least one of the preceding claims, characterised in that the heating means (3) has a device through which steam flows, more particularly a tube bank.
- 30 6. Device according to at least one of the preceding claims characterised in that the heating means (3) has electric heating.
- 35 7. Device according to at least one of the preceding claims characterised in that the container is formed cylindrical whereby the longitudinal axis is horizontal.

8. Device according to at least one of the preceding claims characterised in that the container has on the top side a collecting pipe (22) for discharging gases.

5 9. Device for thermal waste water purification characterised in that at least two devices (R5) are connected in series.

10 10. Method for thermal waste water purification of melamine-containing waste water by using a device according to claim 1 characterised in that the temperature in the device (R5) is greater than 190°C, more particularly in the area of 220 to 240°C.

15 11. Method according to claim 10 characterised in that the pressure in the device (R5) is between 30 bar and 100 bar, more particularly between 30 bar and 60 bar.

20 12. Method for thermal waste water purification of melamine-containing waste water by using a device according to claim 1, characterised in that the waste water is preheated at least once before the hydrolyser (R5).

25 13. Method according to claim 12 characterised in that at least a preheating of the supply to the hydrolysis takes place through a heat exchanger (E32) which is heated in the counter flow with the output flow of the hydrolyser (R5).

30 14. Method for the thermal waste water purification of melamine-containing waste water by using a device according to claim 1 characterised in that the waste water is guided through the hydrolyser (R5) to a column (C8)  
35 whereby the head product of the column (C8) is directed to the gas washer (C9).